Time-Dependency in Architectures

Time-dependency has not been a prominent feature of the artifacts depicted in previous versions of DoDAF. This article discusses the basic requirements for building "As-Is" and "To-Be" architectural descriptions, as well as the incremental snapshots-in-time of architectures that are inevitably produced as a program or project moves closer to its target state. There may be multiple "To-Be" architectural descriptions as well as multiple incremental snapshots.

Time-dependent representation is intended to enable stakeholders to answer questions such as these:

- When are new systems or subsystems needed?
- What new capabilities will each milestone bring?
- When will new processes or organizational structures be implemented?
- How will a schedule delay affect the rollout of overall enterprise capabilities?

Time-dependent Fit-for-Purpose Views (architecture snapshots) become an important contributor to the schedule for an architecture initiative. The timeframe for developing and implementing each snapshot should first be specified, along with the time period the snapshot itself will represent (e.g., "2015-2020"). A data attribute such timeframes must be documented, to support planning. Other schedule-related attributes should be added by specific projects as necessary.

A *transition plan* lays out a course of action that can be predicted to lead, via a number of intermediate steps, to the desired end state of the enterprise. It is usually preferable, in fact, to lay out several alternative courses of action and evaluate each one based on its relative costs and merits. The transition path chosen should -- given the alternatives -- maximize the probability that the enterprise will succeed.

Trade-offs in Transition Planning

There are many real-world issues that bedevil long-term acquisition planning and make it hazardous to rely solely on single "As-Is" and "To-Be" models. Short-term considerations -- such as the availability of budgetary or other resources -- might lead management to favor portfolio (architectural) choices that are non-optimal for the long-term, but which satisfy immediate, high priority goals. Such situations require that "To-Be" architectural descriptions be revisited frequently, e.g., when a component program updates its schedule, projected capabilities, or projected costs. Strict configuration management of the architectural description is required. Programs and other efforts represented in the enterprise description must be monitored. Architecture analysis previously performed should be re-examined periodically to prevent the architectural description from falling out-of-synch with reality.

Key Data Supporting Transition Planning

A complete specification of the kinds of data needed to support transition planning is neither possible nor desirable in this document. However, general guidelines for constructing a data-backed architectural description are given below. The main data types typically needed are:

1. The organization's *mission* (and/or "desired capabilities"): Define the capabilities a system or enterprise will be providing, and toward what end(s) those capabilities will be employed. This description should be fairly granular, so that a program can demonstrate partial fulfillment of a capability set as transition proceeds. Such granularity will also help if it becomes necessary down the road to adjust the cost-benefit criteria that guide investments.
2. The *systems or programs* under consideration: Each system or program should be assigned a start date, duration, end date, estimated cost, prerequisites (dependencies); and the system functions to be developed at each milestone/for each architectural snapshot. Note that correlating systems and their functions to operational mission threads (or equivalent) may also prove very enlightening.

Transition Strategy

A Transition Strategy should include:

- **Agency Mission/Change Drivers**. A summary-level mission statement and overview of primary modernization and/or change drivers.
- **Baseline Architecture**. Overview of the baseline ("As-Is") architectural description.
- **Target Architecture**. Overview and illustration of the target ("To-Be") architectural description, including the definition of enterprise segments.
- **Enterprise Sequencing**. A high-level view of enterprise modernization activities, outlining the relative prioritization and sequencing of enterprise segments, programs and projects, and the relationships between activities. The plan also describes relationships between transition activities and investments.
- **Performance Improvement Summary**. A summary description of the performance goals and planned results from each segment, program or project identified in the Sequencing Plan.
- **Cross-Agency Initiative Integration Summary**. A consolidated view of planned activities and milestones required to implement the cross-agency integration initiatives (both mandatory and informational) described in the *Federal Transition Framework (FTF) Catalog*.
- **Segment Architecture Overview**. Summary description of enterprise segments as defined in the Enterprise Architecture Transition Strategy.